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PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 10/002,393

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Applicant: Masaya Ishida

Group Art Unit: To be assigned

Examiner: To be assigned

Title: ORGANIC ELECTROLUMINESCENT DEVICE,  
METHOD OF MANUFACTURING THE SAME, AND  
ELECTRONIC APPARATUS

Attorney Docket: 9319S-000303

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Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**PRELIMINARY AMENDMENT**

Sir:

Prior to the examination of this application, please amend the application as follows.

**IN THE SPECIFICATION**

Please replace the following paragraphs of the specification. Applicant includes herewith an Attachment for Specification Amendments showing a marked up version of each replacement paragraph.

**[0005]** An organic electroluminescent device according to the present invention comprises an organic thin-film transistor element including at least an active layer made from an organic-material, and an organic electroluminescent element driven by the organic thin-film transistor. As the organic thin-film transistor is adopted for driving the organic electroluminescent element, the entire manufacturing operation may be performed by inkjet processes without using special equipment. Accordingly, the manufacturing cost can be reduced.

**[0012]** In short, according to the configuration in which the organic thin-film transistor is adopted for driving the organic electroluminescent element, the organic electroluminescent device may be manufactured by the liquid-phase processes such as an inkjet process without using special devices or equipment.

Please delete paragraphs **[0045]** to **[0063]**.

**[0100]** With reference to the description above, the present invention may have the following forms.

- (1) An organic electroluminescent device according to any of the above embodiments, further comprising interlayer wiring that electrically connects the organic thin-film transistor element with the organic electroluminescent element.
- (2) A method of manufacturing an electroluminescent device according to any of the above methods, further comprising a step of providing interlayer wiring that electrically connects the organic thin-film transistor element with the organic electroluminescent element.

Please delete the Abstract Section of the specification and replace it with the following abstract in clean form. Applicant includes herewith an Attachment for Specification Amendments showing a marked up version of the previous version of the Abstract Section.

## ABSTRACT

An organic electroluminescent device comprising: an organic thin-film transistor element including at least an active layer made of an organic material; and an organic electroluminescent element driven by the organic thin-film transistor element.

## IN THE CLAIMS

Please cancel claims 1-17 and add the following new claims.

18. (New) An organic electroluminescent device comprising:

an organic thin-film transistor element including at least an active layer made of an organic material; and

an organic electroluminescent element driven by the organic thin-film transistor element.

19. (New) The organic electroluminescent device according to Claim 18, further comprising a substrate, wherein the organic electroluminescent element is provided between the substrate and the organic thin-film transistor element.

20. (New) The organic electroluminescent device according to Claim 18, further comprising a substrate, wherein the organic thin-film transistor element is

provided between the substrate and the organic electroluminescent element.

21. (New) The organic electroluminescent device according to Claim 18, wherein, in each pixel, a total area of a source region area and a drain region area of the organic thin-film transistor element is larger than an area of a region provided with a luminescent material of the organic electroluminescent element.

22. The organic electroluminescent device according to Claim 18, wherein the source and the drain, which constitute the organic thin-film transistor element, have bent parts that face each other at a predetermined spacing.

23. (New) The organic electroluminescent device according to Claim 22, wherein a gate is provided so as to cover the bent parts of the source and the drain.

24. (New) The organic electroluminescent device according to Claim 22, wherein the bent parts of the source and the drain are provided in a comb-shape and face each other at a predetermined spacing.

25. (New) The organic electroluminescent device according to Claim 22, wherein the bent parts of the source and the drain are provided in a spiral-shape and face each other at a predetermined spacing.

26. (New) A method of manufacturing an organic electroluminescent device, comprising:

a step of forming an organic electroluminescent element above a substrate; and  
a step of forming an organic thin-film transistor element, for driving the organic

electroluminescent element, above the organic electroluminescent element.

27. (New) A method of manufacturing an organic electroluminescent device, comprising:

    a step of forming an organic thin-film transistor element above a substrate; and  
    a step of forming an organic electroluminescent element, which is driven by the organic thin-film transistor element and performs predetermined display, above the organic thin-film transistor element.

28. (New) The method of manufacturing an organic electroluminescent device according to Claim 26, wherein, in each pixel, a total area of a source region area and drain region area of the organic thin-film transistor element is larger than an area of a region provided with a luminescent material.

29. (New) The method of manufacturing an organic electroluminescent device according to Claim 26, wherein the source and the drain, which constitute the organic thin-film transistor element, have bent parts that face each other at a predetermined spacing.

30. (New) The method of manufacturing an organic electroluminescent device according to Claim 29, wherein a gate is provided so as to cover the bent parts of the source and the drain.

31. (New) The method of manufacturing an organic electroluminescent device, according to Claim 29, wherein the bent parts of the source and the drain are

provided in a comb-shape and face each other at a predetermined spacing.

32. (New) The method of manufacturing an organic electroluminescent device, according to Claim 29, wherein the bent parts of the source and the drain are provided in a spiral-shape and face each other at a predetermined spacing.

33. (New) The method of manufacturing an organic electroluminescent device, according to Claim 26, wherein, at least the organic thin-film transistor and an organic-luminescent layer of the organic electroluminescent element are formed by a liquid-phase process.

34. (New) An electronic apparatus comprising an electroluminescent device according to Claim 18.

35. (New) The method of manufacturing an organic electroluminescent device according to Claim 27, wherein, in each pixel, a total area of a source region area and drain region area of the organic thin-film transistor element is larger than an area of a region provided with a luminescent material.

36. (New) The method of manufacturing an organic electroluminescent device according to Claim 27, wherein the source and the drain, which constitute the organic thin-film transistor element, have bent parts that face each other at a predetermined spacing.

37. (New) The method of manufacturing an organic electroluminescent device according to Claim 36, wherein a gate is provided so as to cover the bent parts

of the source and the drain.

38. (New) The method of manufacturing an organic electroluminescent device, according to Claim 36, wherein the bent parts of the source and the drain are provided in a comb-shape and face each other at a predetermined spacing.

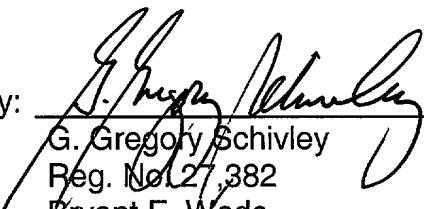
39. (New) The method of manufacturing an organic electroluminescent device, according to Claim 36, wherein the bent parts of the source and the drain are provided in a spiral-shape and face each other at a predetermined spacing.

40. (New) The method of manufacturing an organic electroluminescent device, according to Claim 27, wherein, at least the organic thin-film transistor and an organic-luminescent layer of the organic electroluminescent element are formed by a liquid-phase process.

**REMARKS**

The purpose of this amendment is to clarify the translation and add new claims. Favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

By:   
G. Gregory Schivley  
Reg. No. 27,382  
Bryant E. Wade  
Reg. No. 40,344

Dated: March 28, 2002

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

## **ATTACHMENT FOR SPECIFICATION AMENDMENTS**

The following is a marked up version of each replacement paragraph and/or section of the specification in which underlines indicates insertions and brackets indicate deletions.

**[0005]** An organic electroluminescent device according to the present invention comprises an organic thin-film transistor element including at least an active layer made from an organic-material, and an organic electroluminescent element driven by the organic thin-film transistor. As the organic thin-film transistor is adopted for driving the organic electroluminescent element, the entire manufacturing operation may be performed by inkjet processes without using special equipment[s]. Accordingly, the manufacturing cost can be reduced.

**[0012]** In short, according to the configuration in which the organic thin-film transistor is adopted for driving the organic electroluminescent element, the organic electroluminescent device may be manufactured by the liquid-phase processes such as an inkjet process without using special devices or [without using special] equipment[s].

**[0100]** With reference to the description [in the Claims] above, the present invention may have the following forms.

- (1) An organic electroluminescent device according to any [one] of the above embodiments [Claims 1 to 8], further comprising interlayer wiring that electrically connects the organic thin-film transistor element with the organic electroluminescent element.
- (2) A method of manufacturing an electroluminescent device according to any [one] of the above methods [Claims 9 to 16], further comprising a

step of providing interlayer wiring that electrically connects the organic thin-film transistor element with the organic electroluminescent element.

## ABSTRACT

An organic electroluminescent device comprising: an organic thin-film transistor element including at least an active layer made of an organic material; and an organic electroluminescent element driven by the organic thin-film transistor element.

[Fig. 1]